

NON-PUBLIC?: N
ACCESSION #: 9101090143
LICENSEE EVENT REPORT (LER)

FACILITY NAME: YANKEE NUCLEAR POWER STATION, PAGE: 1 OF 3
Rowe, MA. 01367

DOCKET NUMBER: 05000029

TITLE: Manual Valve Operation Results in Reactor Scram
EVENT DATE: 12/05/90 LER #: 90-011-00 REPORT DATE: 01/04/91

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Gregory A. Maret, TELEPHONE: (413) 424-5261
Technical Director

COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

On 12/5/90, at 0702 hours, with the plant in Mode 1 at 100% power, following performance of valving to support repair of a control air leak, an automatic reactor scram occurred. Closure of a control air isolation valve (CA-V-1239) resulted in an unanticipated loss of air to the Heater Drain Tank High Level Dump Valve causing it to open. This resulted in sequential automatic tripping of the Heater Drain Pump on low Heater Drain Tank level and the Boiler Feed Pumps (BFPs) on low suction pressure. The loss of feedwater flow from the BFPs resulted in a low level condition in the steam generators which initiated the automatic reactor scram.

The root cause of this event has been attributed to personnel error. An incomplete notation on a plant drawing and the valve identification tag

contributed to the error. As corrective actions the drawing and valve tag have been corrected and a walkdown of the control air system drawings is in progress.

All plant systems functioned as designed during the event. There was no adverse effect on the health or safety of the public as a result of this event.

END OF ABSTRACT

TEXT PAGE 2 OF 3

INITIAL CONDITIONS

The plant was in Mode 1, at 100% reactor power, with a main coolant EIIS:AB! pressure of 2000 psig, an average temperature of 532 degrees Fahrenheit and a boron concentration of 1468 ppm. The Shift Supervisor (SS) and the Secondary Auxiliary Operator (SAO) were physically verifying that Tagging Order No. 90-1823 would properly isolate a Control Air System EIIS:LD! leak on the piping to the Turbine Control Valves Servo Motor test devices to allow repair of the leak by Maintenance Department personnel.

EVENT DESCRIPTION

On December 5, 1990, shortly before 0700 hours, the SAD slowly closed isolation valve EIIS:SHV CA-V-1239 while the SS monitored the air line leak. The SS radioed the SAO to inform him that the leak was decreasing, to continue closing the valve and that he would be tagging the valve to allow work on the repair.

Upon closure of CA-V-1239, control air was isolated to the four Turbine Control Valve Servo Motor test devices, the line to be repaired, and to the Turbine Oil Operated Air Pilot Valve. The oil operated air pilot valve uses air to supply a signal to a valve in the air supply line to the Heater Drain (EIIS:SN) Tank High Level Dump Valve, BF-V-402A EIIS:LCV!, which fails open on loss of control air. When the valve opened, the water in the Heater Drain Tank EIIS:TK! was drawn into the Main Condenser EIIS:COND!. The Heater Drain Pump EIIS:P! tripped on low Heater Drain Tank level. Loss of Heater Drain Pump flow resulted in low suction pressure at the Boiler Feed EIIS:SJ! Pumps EIIS:P! and an automatic trip of these pumps.

Shortly after CA-V-1239 was closed the Secondary Reactor Operator (SRO) acknowledged receipt of the Heater Drain Pump Low Pressure Auto Start panalarm EIIS:IB!. The SRO also noticed that the Boiler Feed Pumps had

tripped and informed the Supervisory Control Room Operator (SCRO) and the Primary Reactor Operator (PRO) of the situation. The SCRO directed the SRO to attempt to restart the Boiler Feed Pumps. The SRO attempted to restart the pumps but was unable to keep them running due to the low suction pressure. Within a few seconds of the attempted restart, at 0702 hours, an automatic reactor EIIS:RCT) scram occurred as the result of low levels in the steam generators EIIS:SG!. The main turbine EIIS:TRB! also tripped, as designed.

CAUSE OF EVENT

The root cause of this event has been attributed to personnel error, in that a sufficiently thorough review of plant drawings was not performed by plant Maintenance Department personnel during preparation and Operations Department personnel when reviewing the tagging request for CA-V-1239.

Upon review of the plant drawing 9699-RK-6A it was determined that the correct

TEXT PAGE 3 OF 3

valve was requested to be tagged closed by the Maintenance Department to repair the leaking air line. The drawing shows that CA-V-1239 supplies both the Turbine Control Valve Servo Motor test devices and the Turbine Oil Operated Air Pilot Valve. However, a notation on the drawing indicated that the valve only supplies the Turbine Control Valve Servo Motor test devices. The Control Room drawing consulted to review the tagging order was 9699-FM-26A. This drawing only shows the air lines as far as the isolation valves to the air manifold that contains CA-V-1239. Drawing 9699-FM-26A does reference drawing 9699-RK-6A for continuation of the air lines and components supplied. The valve identification tag indicated that CA-V-1239 supplied only the Turbine Control Valve Servo Motor test devices. All of these were contributing factors in this event.

CORRECTIVE ACTIONS

The following corrective actions have been initiated as a result of this event:

1. The identification tag on CA-V-1239 was changed to accurately indicate all the equipment supplied by the valve.
2. A walkdown of the control air system to insure accuracy of plant drawings and valve labelling has been started.

3. All personnel involved in plant tagging have been made aware of the importance of adhering to the requirements of plant procedure AP-0017, "Switching and Tagging of Plant Equipment", specifically, the requirement to investigate system valve boundaries prior to requesting valve lineups or providing valving requests.

SAFETY ASSESSMENT

All plant systems functioned as designed during the transient resulting from the closure of CA-V-1239. There was no adverse effect on the health or safety of the public as a result of this event.

SIMILAR EVENTS

This is the first event of this nature.

ATTACHMENT 1 TO 9101090143 PAGE 1 OF 1

YANKEE ATOMIC ELECTRIC COMPANY Telephone (413) 424-5261

Star Route, Rowe, Massachusetts 01367

January 4, 1991
BYR 91-001

TO: NRC - DOCUMENT CONTROL DESK
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U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Subject: Licensee Event Report No. 50-29/90-11
Manual Valve Operation Results in Reactor Scram

Dear Sir:

In accordance with 10 CFR 50.73(a)(2)(iv) the attached Licensee Event Report is hereby submitted.

Very truly yours,

Normand N. St. Laurent
Plant Superintendent

ELM/elm
Enclosure

cc: 3! NSARC Chairman (YAEC)
1! Institute of Nuclear Power Operations (INPO)
1! USNRC, Region I
1! Resident Inspector

*** END OF DOCUMENT ***
